Board Of Intermediate & Secondary Education, HYDERABAD, SINDH.

Secondary School Certificate Part – II Annual Examination 2013

Annual Examination 2013 | **MATH** | HYDERABAD BOARD

Time: 15 Minutes M. Marks: 15

Note: (1) Attempt all the questions. Each questions carries ONE mark.
(2) Do not copy down the part questions in your answer book.
Write only the answer in full against the proper number of the Question and its part, and MCQs question paper must be attached with answer book.
(3) The Code of your question paper must be mentioned in bold letters in the answer book.

Section-A

Multiple Choice Question (MCQs)

NOTE: Choose the correct answer for each from the given options:

1. The characteristic of log 5.723 is:
(a) 1 (b) -1 (c) 0 (d) 2
2. A circle passes through all the vertices of a triangle is called:
(a) Segment of circle (b) Circum circle of triangle
(c) Inscribed circle of triangle (d) Escribed circle of triangle.
3. Certesian product of sets A and B is written as:
(a) A.B (b) A x B (c) $A \Delta B$ (d) B x A
4. {2,4,6............} is the set of:
(a) Prime number (b) Old number (c) Even number (d) Whole number
5. The polynomial expression $x^2 + 7zx + 3$ w.r.t the terms is called:
(a) Binomial (b) Trinomial (c) Monomial (d) None of these
6. $\frac{a^9}{a^2}$ = --------
(a) a^{11} (b) a^7 (c) a^{18} (d) None of these
7. The H.C.F of $x^3 - 8$ and $x^4 - 16$ is .....
(a) $(x^3 - 8)(x^4 - 4)$ (b) $x^4 - 4$ (c) $x - 2$ (d) $x + 2$
8. If $(x - 2)(x + 3) = 0$ then x = ...
(a) -3 , -2 (b) 3 , 2 (c) -3 , 2 (d) 3 , -2
9. An angle greater than 90° is called....
(a) Acute angle (b) Obtue angle (c) Right angle (d) None of these
10. The triangle having no sides congruent is called....
(a) Isosceles triangle (b) Scalene triangle
(c) Equilateral triangle (d) Acute triangle
11. Solution set of $\sqrt{y-2} = -4$ is ....
(a) 18 (b) ±4 (c) { } (d) None of these
12. $(\sin 45^\circ)^2 + (\cos ....)^2 = 1$
(a) 90° (b) 60° (c) 45° (d) 30°
13. In 12,13,4,4,5,7,9 the mode is:
(a) 3 (b) 5.5 (c) 4 (d) 9
14. $\frac{\log_3{}^3}{\log_s{}^2}$ = ________
(a) $\log_3{}^2$ (b) $\log_s{}^3$ (c) $\log_3 2$ (d) $\log_2 3$
15. $\begin{bmatrix} 4 & 0 \\ 0 & 4 \end{bmatrix}$ Is a .... matrix
(a) Rectangular (b) Unit (c) Scalar (d) Diagonal
16. If $\log_{10} 100 = y$ then y = ______
(a) 2 (b) 3 (c) 10 (d) 5
17. The value of Sin 45° = ________
(a) 2 (b) $\frac{1}{2}$ (c) -2 (d) $\frac{1}{\sqrt{2}}$
18. $(a + b)^2 - (\text{-----}) = 4ab$
(a) a – b (b) a + b (c) $(a - b)^2$ (d) $(a + b)^2$
19. In scientific notation 0.000573 is written as:
(a) 0.573×10^{-4} (b) 5.73×10^{-4} (c) 57.3×10^{-5} (d) 0.0573×10^{-2}
20. $x^3 - x^2 + 2$ = _______
(a) $(x - 1)(x^2 + 2x + 2)$ (b) $(x + 1)(x^2 - 2x - 2)$
(c) $(x + 1)(x^2 + 2x - 2)$ (d) $(x + 1)(x^2 - 2x + 2)$

TIME ALLOWED: 2:40 MINUTES MARKS: 60

SECTION – B

NOTE: Answer Any TEN of the Following Questions. All Quistions Carry Equal Marks. 36

Q. (2) Define any TWO of the following and draw the figure. Triangle, Transversal. Diameter

Q. (3) Prove that $\cos^2\theta - \sin^2\theta = 1 - 2\sin^2\theta$

Q. (4) Find H.C.F of $x^2 + x - 2$, $x^3 + 2x^2 + x + 2$ by division method.

Q. (5) If = {a , b), B = (2 , 3) and C = {3 , 4 } find the value of :
(i) A x (BUC) (ii) A x (B∩C)

Q. (6) Find the value of $x^2 + \frac{1}{x^2}$ when $= 2 + \sqrt{3}$

Q. (7) Describe the advantages and disadvantages of mode.

Q. (8) What should be added to $x^4 + 4x^3 + 10x^2 + 14x + 7$ to make it perfect square.

Q. (9) Eliminate {y} from the following equations.
$\frac{y}{b} + \frac{b}{y} = 2c$ $\frac{y^2}{b^2} + \frac{b^2}{y^2} = a^2$

Q. (10) Simplify
$\frac{1}{4a^2 - b^2} - \frac{1}{2a - b} + \frac{1}{2a + b}$

Q. (11) Two numbers are in the ratio of 13:11 and their difference is 12 find the number.

Q. (12) Construct a tiranlge ABC in which $m\overline{AB} = 5$cm, m∠B = 105° and m$\overline{BC}$ = 4cm. Draw it circumscribed circle.

Q. (13) Find the value of $\underline{0.087}$ with the help of logarithm.

Q. (14) Factorize any TWO of the following.
(i) $x^2 + 15x - 100$ (ii) $a^4 - a^2 + 1$ (iii) $8x^3 - 27y^6$

Q. (15) The sum of two algebraic expressions is $4x^4 - 3x^3 + 2x^2 - a$, if one o them is $2x^4 + x^3 - x^2 + 2a$, then find the other.

SECTION – C

NOTE: Answer Any THREE of the Following Questions. All Quistions Carry Equal Marks. 30

Q.(16) Find the L.C.M of the given polynomials by factorization. $x - y$, $x^2 - y^2$, $x^3 - y^3$ and $x^4 + x^2y^2 + y^4$
(b) Solve the equations: x + y = 4 , 2x – 1 = 5y

Q.(17) (a) Solve the triangle ABC when m∠C = 90°C. C = $10\sqrt{2}$ cm and a = 10 cm.
(b) A tree of 180dm height on one bank of the river makes angle of 30° directly on the opposite side of the river. find the width of the river.

Q.(18)(a) Prove that, if two sides of a triangle are congruent the angle opposite to them are also congruent.
(b) Draw a circle with radius 4.5 cm. draw a tangent at a point M to the circle.

Q.(19)(a) A father is twice old as his son. 8 years back their ages were in the ratio of 8:3 . find their present ages.
(b) If A = $\begin{vmatrix} 1 & 3 \\ 2 & 4 \end{vmatrix}$ B = $\begin{vmatrix} 1 & 5 \\ 3 & 0 \end{vmatrix}$ C = $\begin{vmatrix} 3 & 1 \\ 2 & -1 \end{vmatrix}$
Then prove that A9B + C) = AB + AC

Q.(20) (a) If U = {1.2.3.....20} A, = {1,2,4,8,10,16,20) and B = {2.6.8.10.14.18} then verify De Morgan's Laws.